

B) distillation under vacuum of the waste oil obtained according to step A) for segregation of fuel oil and diesel fractions with boiling cut of about 170 to 385°C in form of high grade fuel oils;

C) non-destructive distillation of the distillation residue from step B) by means of thin film evaporation in vacuum to obtain a lubricating oil fraction, which can be separated, as needed, via a subsequent distillative fractioning step, optionally under vacuum, into boiling cuts of different viscosity states;

D) if appropriate, non-destructive distillation of the bottom product from step C) in order to obtain a lubricating oil fraction of higher viscosity state than the fraction obtained in step C) which can be segregated, as needed, optionally under vacuum, by means of a subsequent distillative fractioning step;

B1 E) extraction of the fraction or fractions in the form of lubricating oil fractions or boiling cuts of different viscosity states from step C) and optionally D) with N-methyl-2-pyrrolidone (NMP) and/or N-formylmorpholine (NMF) as extraction medium in order to obtain very high grade base oils whereby the extraction is executed in such manner that undesirable constituents are removed in an almost quantitative manner, and the contents of the polycyclic aromatic hydrocarbons (PAK) and polychlorinated biphenylenes (PCB) lies, respectively, below 1 mg/kg.

2. (Amended) Method according to Claim 1, wherein the waste oils to be reprocessed are treated with watery alkaline solution as reagent in order to segregate interfering constituents.

B2 5. (Amended) Method according to Claim 4, wherein the alkaline solution is approximately 5 to 50% by weight potassium hydroxide solution.

B2 6. (Amended) Method according to Claim 5, wherein the feed (charge for extraction) is imparted an alkalinity reserve, to prevent formation of acid reaction products in the extraction medium.

10. (Amended) Method according to Claim 9, wherein an extract phase is cooled down and a settling oil phase is again added to the feed.

B3 11. (Amended) Method according to claim 1 wherein the extraction is performed with a temperature gradient, whereby the temperature is adjusted at an extraction column head (run off raffinate) to approximately 50 to 90°C and at an extraction column end (extract run-off) to approximately 10 to 50°C.

B4 13. (Amended) Method according to claim 1 wherein the waste oil to be reprocessed has a contents of vegetable oils of up to approximately 5%.

THE OFFICE ACTION

In the Office Action, the Examiner made several rejections. The Examiner indicated that the Declaration was defective for failure to properly claim the benefit of the PCT International application. The Examiner indicated that a new oath or declaration is required.

The Examiner also rejected claims 1-13 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. Specifically, the Examiner indicated that various expressions in claim 1, 2, 5, 6, 10, 11, 12 and 13 were unclear and rendered the claims indefinite.

The Examiner also rejected claims 1 and 7-13 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,360,420 to Fletcher et al in view of U.S. Patent No. 4,328,092 to Sequeira Jr. and EP 0109366. The Examiner also rejected claims 2-6 under 35 U.S.C. §103(a) as being unpatentable over Fletcher in view of Sequeira and EP0109366 and further in view of U.S. Patent No. 4,021,333 to Habiby et al.